

CAMBRIDGE, U. S.

(Professor Bond.)

	Cam. M. T.	R. A.	Obs.—Cal.	Dec.	Obs.—Cal.	No. of Obs.
1847.	<sup>h</sup> <sup>m</sup>	<sup>h</sup> <sup>m</sup> <sup>s</sup>	<sup>s</sup>			
Aug. 18	11 13	22 5 41.75	—0.03	—12° 21' 42".9	+0".2	4
20	10 11	5 29.36	0.13	22 51.2	—0.5	8
21	10 32	5 22.89	0.25	23 26.5	—0.7	10
23	10 26	22 5 10.40	—0.22	—12 24 37.6	+0.6	6

"The star of comparison is 38 *Aquarii*, B.A.C. 7722; the Ephemeris referred to is that published by Mr. Adams in the *Monthly Notice* of June."

*Observations of NEPTUNE and his Satellite.*  
By Mr. Lassell.

Unfavourable weather, and the low altitude of the planet, have not allowed Mr. Lassell to observe the *ring* of *Neptune* satisfactorily; there is, however, no doubt in his mind as to the existence of a ring. The observations of the satellite have been more successful: it has been repeatedly seen in the course of the year, and the non-existence of any star in the places successively occupied by it, frequently ascertained. From the mean of his observations, Mr. Lassell concludes that the satellite revolves about the planet in 5<sup>d</sup> 21<sup>h</sup> nearly, and that its greatest elongation is somewhere about 18". The orbit which it appears to describe has a minor axis differing little from the diameter of the planet.

The satellite is much brighter in the preceding than in the following half of its path. The sixth satellite of *Saturn* varies similarly in brightness. This periodical variation seems to shew that one side of the satellite has less power of giving back light than the other, and that the time of rotation upon its axis is equal to its periodic time round the planet, as is the case in our own moon.

The periodic time assigned by Mr. Lassell accounts for all the configurations of the planet and satellite noted by him since his discovery. The observations this year from August 31 to September 6 are quite conclusive as to the existence of the satellite, and may be represented, coarsely, thus:—

August 31	at	<sup>h</sup> 9.5	○ .
		11.5	○ .
Sept. 2		12.1	○
3			○
4		11.5	○
6		9.0	○ .

Thus on August 31, at 11<sup>h</sup>.5, the satellite had approached the planet sensibly since 9<sup>h</sup>.5; on Sept. 2 it was considerably distant on the other side; it was returning on Sept. 3; had got back again on the 4th; and on the 6th, at 9<sup>h</sup>, was nearly in the same position as on August 31 at 11<sup>h</sup>.5. The appearances are fully explained by the hypothesis of a satellite, and it seems impossible to explain them in any other way. The faintness of the object, which will not bear any illumination, will scarcely allow us to hope for any *very* accurate measures of its greatest elongations; such, for instance, as would give a *precise* value of the mass of *Neptune*: but Mr. Lassell's estimate of the elongation and the periodic time of the satellite are probably not far from the truth.

*Ephemeris of NEPTUNE for Greenwich Mean Midnight.*  
By Mr. Adams.

Date.	R. A.			N. P. D.	Date.	R. A.			N. P. D.
1847. Sept. 12	h	m	s	102° 35' 45".8	1847. Oct. 7	h	m	s	102° 46' 51".0
13	22	3	9.27	36 17.2	8	23	0	5.99	47 11.4
14		3	3.53	36 48.2	9		1	2.16	47 31.1
15		2	57.83	37 19.0	10		0	58.42	47 50.4
16			52.19	37 49.4	11			54.79	48 9.0
17			46.61	38 19.4	12			51.27	48 27.1
18			41.08	38 49.1	13			47.85	48 44.5
19			35.62	39 18.4	14			44.54	49 1.3
20			30.21	39 47.3	15			41.33	49 17.6
21			24.87	40 15.8	16			38.24	49 33.2
22			19.61	40 44.0	17			35.26	49 48.2
23			14.41	41 11.7	18			32.39	50 2.6
24			9.27	41 38.9	19			29.63	50 16.3
25			4.22	42 5.8	20			27.00	50 29.5
26			59.24	42 32.2	21			24.47	50 41.9
27			54.34	42 58.2	22			22.07	50 53.7
28			49.51	43 23.7	23			19.78	51 4.8
29			44.76	43 48.7	24			17.61	51 15.3
30			40.10	44 13.3	25			15.56	51 25.1
Oct. 1			35.52	44 37.4	26			13.64	51 34.3
2			31.03	45 1.0	27			11.83	51 42.8
3			26.62	45 24.1	28			10.15	51 50.6
4			22.30	45 46.6	29			8.59	51 57.8
5			18.08	46 8.6	30			7.15	52 4.2
6			13.95	46 30.1	31			5.85	102 52 10.0
			9.92					4.66	